

measuring hydrocarbons when testing with oxygenated fuels.

(b) *Component requirements.* We recommend that you use a FID analyzer that meets the specifications in Table 1 of § 1065.205. Note that your FID-based system for measuring THC, THCE, or CH₄ must meet all of the verifications for hydrocarbon measurement in subpart D of this part, and it must also meet the linearity verification in § 1065.307. You may use a FID that has compensation algorithms that are functions of other gaseous measurements and the engine's known or assumed fuel properties. The target value for any compensation algorithm is 0.0% (that is, no bias high and no bias low), regardless of the uncompensated signal's bias.

(c) *Heated FID analyzers.* For diesel-fueled engines, two-stroke spark-ignition engines, and four-stroke spark-ignition engines below 19 kW, you must use heated FID analyzers that maintain all surfaces that are exposed to emissions at a temperature of (191 ± 11) °C.

(d) *FID fuel and burner air.* Use FID fuel and burner air that meet the specifications of § 1065.750. Do not allow the FID fuel and burner air to mix before entering the FID analyzer to ensure that the FID analyzer operates with a diffusion flame and not a premixed flame.

(e) *Methane.* FID analyzers measure total hydrocarbons (THC). To determine nonmethane hydrocarbons (NMHC), quantify methane, CH₄, either with a nonmethane cutter and a FID analyzer as described in § 1065.265, or with a gas chromatograph as described in § 1065.267. Instead of measuring methane, you may assume that 2% of measured total hydrocarbons is methane, as described in § 1065.660. For a FID analyzer used to determine NMHC, determine its response factor to CH₄, RF_{CH_4} , as described in § 1065.360. Note that NMHC-related calculations are described in § 1065.660.

§ 1065.265 Nonmethane cutter.

(a) *Application.* You may use a nonmethane cutter to measure CH₄ with a FID analyzer. A nonmethane cutter oxidizes all nonmethane hydrocarbons to CO₂ and H₂O. You may use a non-

methane cutter for raw or diluted exhaust for batch or continuous sampling.

(b) *System performance.* Determine nonmethane-cutter performance as described in § 1065.365 and use the results to calculate NMHC emission in § 1065.660.

(c) *Configuration.* Configure the nonmethane cutter with a bypass line for the verification described in § 1065.365.

(d) *Optimization.* You may optimize a nonmethane cutter to maximize the penetration of CH₄ and the oxidation of all other hydrocarbons. You may humidify a sample and you may dilute a sample with purified air or oxygen (O₂) upstream of the nonmethane cutter to optimize its performance. You must account for any sample humidification and dilution in emission calculations.

EFFECTIVE DATE NOTE: At 73 FR 37300, June 30, 2008, § 1065.265 was amended by revising paragraph (c), effective July 7, 2008. For the convenience of the user, the revised text is set forth as follows:

§ 1065.265 Nonmethane cutter.

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(c) *Configuration.* Configure the nonmethane cutter with a bypass line if it is needed for the verification described in § 1065.365.

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§ 1065.267 Gas chromatograph.

(a) *Application.* You may use a gas chromatograph to measure CH₄ concentrations of diluted exhaust for batch sampling. While you may also use a nonmethane cutter to measure CH₄, as described in § 1065.265, use a reference procedure based on a gas chromatograph for comparison with any proposed alternate measurement procedure under § 1065.10.

(b) *Component requirements.* We recommend that you use a gas chromatograph that meets the specifications in Table 1 of § 1065.205, and it must also meet the linearity verification in § 1065.307.